

# Farhan Damani

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## Education

Sept. 2017- **Masters, Computer Science, Princeton University.**

May 2019 GPA: 3.68/4.0

Sept. **BS, Computer Science, Johns Hopkins University.**

2012–May Major GPA: 3.87/4.0

2017

GRE: Quantitative 170/170 (97th percentile); Verbal 159/170 (82nd percentile); Writing 5.5/6 (98th percentile)

Relevant coursework: Probabilistic Graphical Models, Unsupervised Learning, Linear and Nonlinear Optimization, Probability and Statistics

## Research/Work Experience

[Dr. Abby Doyle, Princeton Chemistry Department](#)

Sept. 2019 - Machine learning for reaction condition design.

[Simulations & Modeling Sciences, Pfizer R&D](#)

May. 2019 - Consultant—machine learning for drug discovery.

[Dr. Jonathan Pillow, Princeton Neuroscience Institute](#)

Aug. 2017 - probabilistic models; behavioral neuroscience.

May 2019

[Dr. Ryan Adams, Princeton Department of Computer Science](#)

Aug. 2017 - probabilistic modeling, behavioral neuroscience; automated molecular design; generative models.

May 2019

[Dr. Alexis Battle, Johns Hopkins University Department of Computer Science](#)

Jan. 2015 - Developed a Bayesian hierarchical model to understand the impact of genetic variation on molecular traits.

Aug. 2017

[Prosthetics team at Applied Physics Lab, Laurel, MD](#)

June 2014- Implemented an open source grasp planner to determine stable grasp points for the Modular Prosthetic Limb (MPL). Also worked on implementing a grasp quality metric using force sensors to compare the MPL to other low dexterity robotic manipulators.

Jan. 2015

## Presentations

2019 Molecular Optimization with Recursive Sequence-to-Sequence Inference. Invited talk at Pfizer R&D, Cambridge, MA.

- 2019 Tutorial on Bayesian Optimization for drug discovery. Invited talk at Pfizer R&D, NYC.
- 2019 Damani, F. et. al. Inferring animal learning rules from behavior with probabilistic models. Computational and Systems Neuroscience (COSYNE). Lisbon, Portugal. (poster)
- 2016 Damani F., et. al. *Predicting tissue-specific effects of rare genetic variants*. Biological Data Science at Cold Spring Harbor Laboratory. 2016 (talk).
- 2016 Invited talk at Princeton University.
- 2016 Damani F., et al. *Exploring effects of rare non-coding variants*. Symposium on Advances in Genomics, Epidemiology, and Statistics. University of Pennsylvania Perelman School of Medicine. Philadelphia, PA. (poster).

## Publications

### Preprints.

- 2019 Damani, F., Sresht, V., Ra, S. *Black Box Recursive Translations for Molecular Optimization*. Under review. <https://openreview.net/pdf?id=rJxok1BYPr>
- 2019 Damani, F., Yates, J., Scholl, B., Pillow, J. *Variational Bayesian decoding of high-dimensional neural activity with Gaussian process priors*.
- 2016 Damani F., Kim Y., Li X., Tsang E., Davis J., Chiang C., Zappala Z., Strober B., Scott A., Hall I., GTEx Consortium, Montgomery S., Battle A. *A framework for predicting tissue-specific effects of rare genetic variants*. In preparation. Manuscript available here: <http://goo.gl/85qLFj>

### In press.

- 2019 Seff, A., Zhou, W., Damani, F., Doyle, A., Adams, R.P. *Discrete Object Generation with Reversible Inductive Construction*. Neural Information Processing Systems 2019.
- 2019 Damani, F., Roy, N., Akrami, A., Brody, C., Adams, R.P., Pillow, J.W. *Inferring animal learning rules from behavior with probabilistic models*. Computational and Systems Neuroscience (Cosyne) Extended Abstract.
- 2016 Li X., Kim Y., Tsang E., Davis J., Damani F., Chiang C., Zappala Z., Strober B., Scott A., Ganna A., Merker J., GTEx Consortium, Battle A., Montgomery S. *The impact of rare variation on gene expression across tissues*. Nature, 2017.
- 2016 Chiang C., Scott A., Davis J., Tsang E., Li X., Kim Y., Damani F., Ganel L., GTEx Consortium, Montgomery S., Battle A., Conrad D., Hall I. *The impact of structural variation on gene expression*. Nature Genetics, 2017.

## Awards

- 2017 National Science Foundation Graduate Research Fellowship Honorable Mention
- 2015 Joseph C. Pistrutto Fellowship recipient (Johns Hopkins Department of Computer Science research fellowship)
- 2016 Acheson J. Duncan Fund recipient (Johns Hopkins Department of Applied Mathematics and Statistics award to support research projects in statistics.)

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## Media

- 2019 Feature on molecular discovery work with Pfizer R&D <https://www.getscience.com/disruptive-science/ni-hao-better-potential-medicines-how-language-translation-technology-being>
- 2014 Johns Hopkins Engineering Magazine feature for work on prosthetics development and artificial intelligence as a summer intern and part-time employee in fall 2014 at the Applied Physics Lab. See <http://engineering.jhu.edu/magazine/2014/12/spured-get-better-grasp/#.VJm0o8AB0U> for details.
- 2014 One-on-one interview for work in prosthetics. Details here <https://rising.jhu.edu/spur>.

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## Activites

- 2018-2019 Teaching Assistant for Introduction to Machine Learning (fall and spring).
- 2014-2015 Founder of the first intern think tank at the Applied Physics Lab. Led weekly meetings for 300+ interns to discuss engineering problems of interest and potential solutions.
- 2012-2014 Journalist for Ismaili USA Magazine, most widely distributed Muslim magazine in the country (over 500,000 subscribers).

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## References

Dr. Jonathan Pillow; Princeton Neuroscience Institute  
Dr. Alexis Battle; Johns Hopkins Computer Science  
Dr. Ryan Adams; Princeton Computer Science